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Abstracts from the 2016 Oklahoma Research Day

Held at Northeastern State University

02. Education and Professional Studies

03. Health Studies

02.03.01 Scoping Gastroenterology Journals: 100% of Meta-analyses Tested Positive for Publication Bias

Heavener,Trace *Oklahoma State University*

Vassar,Matt *Oklahoma State University*

In systematic reviews and meta-analyses, publication bias (PB) is problematic, given that combining only statistically significant outcomes is likely to overestimate the true effect of an intervention since marginal or non-significant findings have been omitted. Therefore, we examined current practices for evaluating PB in systematic reviews from the gastroenterology literature and also assessed the extent to which PB was present among studies not reporting these evaluations. We performed a search which identified 304 studies. Of these, 215 were eligible for inclusion and coded based on relevant study characteristics. Meta-analyses that failed to perform a PB evaluation and contained greater than 10 primary studies were assessed for PB using Egger's regression and the trim and fill method. 52.56% (113/215) of studies reported assessing PB with the remainder failing to report any such evaluation. Of qualified studies that did not assess PB, we found evidence for PB in 100% (15/15) of studies. Based on our analysis, PB evaluations were not commonly performed as approximately 50% failed to conduct this analysis. While funnel plots were the most common assessment, their use has been questioned by systematic reviewers in favor of more robust methods. Furthermore, given that evidence for PB was found in all qualified meta-analyses, more attention in this area is greatly needed.

02.03.02 Effect of maternal antibodies on SCID screening in newborn

ALBUSTANI,MUSTAFA *University of Oklahoma*

Introduction: In February 2015 Oklahoma state included TRECs as screening method for SCID in newborn screening. We report here case of false positive TREC due to Neonatal lupus erythematosus which is a rare passively acquired autoimmune syndrome resulting from the transplacental passage of maternal antibodies to the fetus. Case presentation: A five-week-old male, was brought to our clinic for evaluation of positive Trec screening. Patient was born to 30 year old mother who was known to have Sjogren's disease with +SSA antibody. He was initially sent to nursery, where he was noted to have blueberry muffin rash covering his body. Patient was transferred to NICU to rule out sepsis. Physical exam was within normal limit except for oval blueberry muffin like rash on pt scalp, face, back, feet and palm. The patient was diagnosed with neonatal lupus. Blood labs showed platelet count of 34 with normal hemoglobin and white cell count. Thrombocytopenia worsened over the following two days requiring IVIG treatment. Response was minimal, and he was given second dose of IVIG and started on parenteral steroids. Prior to discharge, newborn screening results came back with Trec of 9 (cutoff >26 Trec). A repeat screen and lymphocyte phenotyping was drawn. Lymphocyte proliferation was normal to mitogens PHA, Con A and PWM. FISH analysis of chromosome 22q11 was also normal, ruling out DiGeorge syndrome. Neonatal lupus and its therapy seems to have a deleterious effect on Trec screening.

02.03.03 Adherence to current Food Allergy prevention guidelines in practice

ALBUSTANI,MUSTAFA *University of Oklahoma*

Background: According to the American Academy of Allergy, Asthma, and Immunology (AAAAI) and newest American Academy of Pediatrics (AAP) guidelines, highly allergenic foods, including milk, soy, wheat, tree nuts, and shellfish, may be introduced between four and six months of age once complementary foods have been fed and tolerated(1). Objective: We proposed that resident physicians are unaware of the change in guidelines and therefore the fact that early introduction of highly allergenic food to infants may protect against food allergy. Participants in this project include 53 residents completed a five-question survey to evaluate their general knowledge and awareness of the current food allergy guidelines and describe their current practice regarding the introduction of highly allergenic foods. Results: 42 residents completed the surveys. Around 73% of residents reported being familiar with current guidelines; only 28% of all residents correctly identified the recommended age for introduction of highly allergenic foods to the diet in infants. Conclusion: Data also suggest poor adherence to these guidelines in practice. These findings provide important information to guide strategies to improve prevention of food allergy in the pediatric age group.

02.03.04 Wissler-fanconi syndrome and associated differential diagnosis

ALBUSTANI,MUSTAFA *University of Oklahoma*

Introduction: Wissler Fanconi, a rare rheumatic syndrome characterized by four typical symptoms;polymorphous exanthemas, fever, leucocytosis and arthralgia. It is considered closely related to Still's disease. We report a case that fulfills criteria for Wissler Fanconi syndrome. Under the more general descriptive umbrella of Wissler-Fanconi syndrome, our patient also fulfills the modified Jones criteria, the 2010 ACR/EULAR criteria for rheumatoid arthritis, and was interpreted by others as fulfilling the Yamaguchi criteria for Still's. Case presentation:A 42-year female presented with shortness of breath and chest pain for one week associated with two days of fever. Patient has polyarthritis and polymorphic rash on the back and lower extremities for four months. Physical exam revealed decreased chest expansion but no rales. CT chest ruled out pulmonary embolism, and revealed a pericardial effusion. Blood sample analysis revealed highly elevated CRP, ESR and Ferritin of 29349 ng/ml,rheumatoid factor 146 IU, CCP Ab 20, ASO titer 179. A combination of naproxen, dapsone and steroid therapy resulted in significant improvement of patient's condition. Patient was discharged with diagnoses of rheumatoid arthritis and rheumatic fever. Adult onset of stills disease was considered in the differential but patient failed to fulfill Yamaguchi criteria. Conclusion: This case highlights important differential diagnoses that may be included under the umbrella of Wissler Fanconi sy

02.03.05 Strength Training Intervention and Falls in Old Subjects Aged 60+ Years Old: Systematic Review

Hernandez Sarabia,Jesus *Oklahoma State University*

Falls expenses accounted for \$47 billions during 2010 in the United States of America. At least 33% of the elderly population tend to fall during a year, and projection about the future is not optimistic. Resistance training may help to improve factors related to falls (sarcopenia, balance, and gait). The aim of this review was to show the findings related to resistance training and falls among elderly subjects during the last five years. A search of relevant articles was done in SPORTDiscus, PubMed Central, Medline, Google scholar, and EBSCO: Health source: Nursing/Academic edition. Articles that made a resistance training intervention with healthy subjects (60+ years old) and with a repeatable methodology were included. Eight articles were included but two of them did not show any significant improvement, three authors found significant improvements in the strength of the lower limbs, two in gait and ability to recover from falls, and one in balance. Resistance training may help to improve the strength, balance, and gait in elderly population but more research is needed.

02.03.06 The Effect of High-Intensity Interval Training on Postural Control, Dynamic Balance, and Muscular Strength among Older Adults

Ross, Antonio *University of Central Oklahoma*

Boyd, Larissa *University of Central Oklahoma*

Ward, Jordan *University of Central Oklahoma*

Researchers determined that muscle weakness and poor balance are associated with increased fall risk. High-intensity interval training (HIIT) has shown benefits in muscular strength. **PURPOSE:** To determine the effects of HIIT on postural sway, dynamic balance, and lower body strength among active older adults. **METHODS:** The experimental group (EG) participated in the 4-week intervention. The control group (CG) continued their normal lifestyle. Participants completed different timed interval bouts. Participants were assessed on postural sway with eyes open (EO) and eyes closed (EC). Dynamic balance and lower extremity strength was measured. The Wilcoxon Sum of Ranks test was utilized to test for within groups' differences. A Mann-Whitney U determined differences between groups. Cohen's d (d) measured the magnitude of the difference. **RESULTS:** Postural sway did not indicate any significant improvements with eyes open stances. The experimental group did show improvement ($d < .30$) with eyes open. The eyes closed stances in the EG showed three significant improvements and magnitudes of improvement. The control group did not. Significant improvements were found in both dynamic balance and strength assessments. The Mann-Whitney indicated significant improvements ($p = .04$) and approached significance for strength ($p = .067$). **CONCLUSION:** HIIT significantly improved dynamic balance and muscular strength. HIIT change over time in EC and EO stances.

02.03.07 Fortification of Navy Bean Extract Decreases Fermentation Time and Enhances Overall Quality of Yogurt

Ita, Maureen *University of Central Oklahoma*

Bhargava, Kanika *University of Central Oklahoma*

Gamagedara, Dr. Sanjeewa *University of Central Oklahoma*

Fermented milk products such as yogurt are one of the most popular probiotic products that offer health benefits due to functional properties of active probiotic bacteria. Pulses, including bean, pea and lentils are good sources of prebiotics, which offers potential to increase quality of yogurt and benefit health. The aim of this study is to evaluate the effect of the navy bean extract on the fermentation time and overall quality of yogurt. Navy bean extracts were prepared to isolate maximum amount of raffinose oligosaccharides. 10g of bean flour was mixed in 100ml of distilled water and incubated overnight at 70°C. Mixture was centrifuged at 1500rpm for 15 mins and supernatant separated. 2.5%-10% of navy bean extracts were fortified in 2% reduced fat milk, pasteurized at 90°C for 10 mins, cooled to about 42°C and then inoculated with yogurt culture (Danisco YO-MIX 883 LYO 500 DCU) and fermented for 4 – 8 hours at 42°F. Physicochemical analysis was carried out. Results showed that yogurt samples fortified with bean extracts reached the desired pH (4.5) within 4-5 hours, total soluble solids in fortified yogurt showed an increase from 5.3 to 6.06°Brix, titratable acidity of yogurt increased from 0.275% (control) to 0.725% (10%) with increase in bean extract concentration. Results may be attributed to the presence of the prebiotic raffinose oligosaccharides, which is found in beans. Future work will be focused on quantification of raffinose oligosaccharide concentration.

02.03.08 Formulation, Nutritional and Sensory Analysis of Coffee Fortified Organic Semolina Protein Bar

Simo,Jean *University of Central Oklahoma*

Bhargava,Kanika *University of Central Oklahoma*

A major challenge in the fight against obesity is a lack of alternative nutritious and organic food sources. Semolina and Lentils are high in protein making it an ideal substitute to flour and the base of our formulation. The purpose of this research is to optimize semolina/lentils to create a protein bar that is fortified with instant coffee. Organic protein bars made from semolina or lentils may serve as alternative protein source as well as a coffee substitute, which is healthier than what the market currently provides. Formulation and process for these coffee protein bars have been optimized after trial with several recipes. The four main ingredients used were semolina/lentils, egg whites, date syrup, and coffee. Semolina/Lentil was roasted, mixed with the other ingredients and baked for 20 mins at 350 degree to decrease moisture content and increase shelf life. Next was adding varying concentrations of caffeine (75mg, 100mg and 125mg). The coffee fortified protein bar will be characterized through moisture content, texture and nutritional analysis. Our current optimized product comprises of 270.38 Kcal and 8.147g protein. Our goal is to decrease the kcal and increase protein content. Protein rich nuts such as almonds and walnuts will be added to achieve this goal. Flavors like cinnamon and cardamom may be added to enhance taste. This research will provide food companies and consumers with an alternative organic protein bar, which is fortified with coffee.

02.03.09 Breathe Smart from the Start: A STLR Project Impacting the Metro through Culturally Sensitive Tobacco Prevention and Cessation Education

Gilmore,Danielle *University of Central Oklahoma*

Cowan,J. Sunshine *University of Central Oklahoma*

Oklahoma's tobacco use is much higher than the national average, as 23.7% of Oklahomans smoke, compared to the national smoking rate of 17.8%. Smoking tobacco causes chronic illness and cancers, killing thousands each year. Through this Student Transformative Learning Record (STLR) Project at the University of Central Oklahoma, research has been compiled to update the American Lung Association's (ALA) program Breathe Smart from the Start, a tobacco cessation program specifically targeting pregnant women and new moms. Tobacco use is the number one cause of preventable death in the US, and millions of dollars each year are spent on tobacco related illness and disease (Campaign for Tobacco Free Kids, 2015). Oklahoma is the only state currently using this program, and it is crucial that it remains up to date. It is important to foster and encourage positivity while still continuing to be provide credible and accurate information. Additionally, an implementation plan has been developed for the ALA to use with community partners to reach target audiences for tobacco prevention and cessation. The goal of this project is to present culturally sensitive information in an innovative and captive way for the purposes of prevention and tobacco cessation without causing shame or victim blaming. Campaign for Tobacco Free Kids. (2015). The Toll of Tobacco in Oklahoma. Retrieved from http://www.tobaccofreekids.org/facts_issues/toll_us/oklahoma

02.03.10 Confession Rates: Does Persuasion Resistance Time Reduce Them?

Dugger, Karissa *University of Central Oklahoma*

Mather, Robert *University of Central Oklahoma*

Confessions are given every day in criminal investigations across the country; countless are true confessions, but there are many false confessions, as well. This study will evaluate participants on their confession rates, whether innocent or guilty, during an experiment that challenges their persuasive resistance when time is given to collect their self-control resources. Resistance to persuasive acts can reduce the rate of true and false confessions. The first hypothesis is that the guilty participants will confess to cheating more than the innocent participants. The second hypothesis is that the participants that receive time to collect their self-control resources will give fewer confessions than those who do not receive time, despite actual guilt or innocence. The third hypothesis is that innocent participants with the time to collect their self-control resources will yield the fewest confessions. This study will use the Russano et al. (2005) paradigm with time given to half of the participants to test the hypotheses. The results from this study can potentially help courts and law enforcement understand how providing a little time to the accused to clear their thoughts before interrogation could avoid incarcerating the wrong person.

02.03.11 Utilization of Social Network Analyses to Reveal Central Outcomes in Clinical Trials of Hyperemesis Gravidarum

Rankin, Justin *Oklahoma State University*

Umberham, Blake *Oklahoma State University*

Carr, Brandon *Oklahoma State University*

Sanchez, Zachary *Other*

Naumann, Kelsey *Oklahoma State University*

Holzmann, Matthew *Oklahoma State University*

Vassar, Matt *Oklahoma State University*

Core outcome sets – a minimum set of outcomes recommended for measurement across all trials of a particular condition – harmonize and address widespread variations in outcomes reporting. Development of a set of core outcomes for clinical trials and systematic reviews is necessary in obstetrics and gynecology to minimize bias and mitigate the heterogeneous nature of outcomes measured in research studies. In order to address this important and timely issue, 50 obstetrics and gynecology journals came together to establish the CROWN Initiative to promote core outcome studies. The aim of this study is to examine the network architecture of outcomes reported in clinical trials of hyperemesis gravidarum and to demonstrate the overall lack of consistent outcomes throughout the trials included in our study. We examined 120 clinical trials of hyperemesis gravidarum from 2006 to 2015. Unique outcomes were coded based on the number of co-occurrences they shared with other outcomes. A social network analysis was performed on the coded outcomes using UCINET and Netdraw. The social network analysis revealed 56 unique outcomes with numerous co-occurrences. Length of hospital admission had the most co-occurrences (42) followed by ketonuria, vomiting frequency, and well-being. The results indicate the necessity for core outcomes to be established. The results of the network analysis will guide future methodological work toward the development of a core outcome set for hyperemesis.

02.03.12 Formulation, Optimization, and Consumer Acceptability of Finger Millet Tortillas

Shakya,Kritika *University of Central Oklahoma*

Dr. Duarte,Patricia *Oklahoma State University*

Hernandez,Zorba *Oklahoma State University*

Bhargava,Kanika *University of Central Oklahoma*

Researches has shown potential health benefits of finger millet in many health conditions due to its nutritional content. However, absence of gluten in it inhibits binding property required to formulate tortillas. The objective of the study is to formulate, optimize, and perform the consumer acceptability study on the finger millet tortillas. We formulated a flour composition using USDA's standardized tortilla recipe consisting of finger millet and chickpea flour at the ratio of 7:3 respectively. We further optimized it with 2% sugar, 4% of glycerin and 15% of starch (rice, potato, and tapioca) to elevate functional and sensory properties. A sensory panel was trained and taste testing was conducted using a descriptive analysis tool to evaluate consumer acceptability, texture and flavor of the tortillas. The overall textural acceptability was significantly high for tortillas made with tapioca and rice but overall acceptability was high for potato starch. The high acceptability of tortillas with potato starch is correlated with flavor analysis that showed it was less bitter, less salty and sweeter. The results indicated that incorporation of potato/rice starches may result in formulation of finger millet tortillas with acceptable textural and sensory properties which would be a nutrient dense alternative to traditional tortillas for people with celiac disease and a potential medicinal food for people with diabetes. Keywords: Finger millet, Celiac disease, Tortilla, Starch

02.03.13 A Systematic Review of Core Domain and Outcome Measurement for Shoulder Arthroplasty Trials

Sims,Matt *Other*

Detweiler,Byron *Other*

Scott,Jared *Other*

Detten,Grant *Other*

Vassar,Matt *Other*

Orthopedics offers multiple interventions yet lacks consistency in outcome reporting and measurement. Without standardized core outcome set (COS), formulating research evidence that will influence policy, practice and patient care is difficult. Corrales et al identified 11 different radiographic and 12 different clinical criteria defining fracture union. This variability confirms the importance of COS development for orthopedic interventions in defining the minimum recommended outcomes for measuring a condition. Recent systematic reviews (SR) found increased shoulder arthroplasty research; however, inconsistent outcome reporting complicates comparisons across studies. We conducted a SR of total shoulder arthroplasty (TSA), hemiarthroplasty and reverse TSA studies to determine reported outcomes. After database searches, articles meeting inclusion criteria were coded for study type, study design, sample size, outcomes, measurement device, specific metric, aggregation method, outcome classification and side effects. We summarized results using frequencies and percentages for binary outcomes, and medians and interquartile ranges for continuous outcomes. Locally weighted scatterplot smoothing (nonparametric regression method) was used to smooth scatterplots of outcome domain use over time. Our SR identified numerous shoulder arthroplasty outcomes lacking standardized outcome measurement. Future work is needed to develop a consensus-based COS incorporating views of stakeholders.

02.03.14 Methodological Quality and Risk of Bias Assessments in Orthopedic Surgery Systematic Reviews

Sims,Matt *Other*

Detweiler,Byron *Other*

Vassar,Matt *Other*

Determining clinical intervention effectiveness and appropriately guiding clinical decisions is dependent upon the validity of primary studies (PS) included in systematic reviews (SR). Authors reported utilization of various tools for analyzing methodological quality/risk of bias (MQ-RoB) within PS. A demand for higher quality orthopedic research, raises concerns regarding the ability to conduct high MQ/low RoB studies and evaluate non-randomized clinical trials (RCT). A PubMed search yielded 299 articles from the top 10 orthopedic journals per Google Scholar Metrics h5-index. SR meeting inclusion criteria were coded for whether MQ-RoB was assessed; MQ-RoB tool; authors' custom measures, if used; if MQ-RoB was graded; if low MQ/high RoB was found; if low MQ/high RoB was included; if subgroup, meta-regression or sensitivity analyses were performed to evaluate the effect of low MQ/high RoB studies; and how MQ-RoB was presented. Of 122 SR, only 63 utilized a MQ-RoB tool. Cochrane RoB Tool and Methodological Index for Non-Randomized Studies (MINORS) were the most utilized tools for analyzing MQ-RoB. Studies rarely reported subgroup, meta-regression or sensitivity analyses. Surgical interventions pose a dilemma due to the inability to randomize, blind and eliminate bias producing aspects. Downs and Black, MINORS, and ACROBAT-NRSI can be used to assess MQ/RoB in non-RCT. However, nearly half of SR and meta-analyses published in high impact journals failed to utilize a RoB tool.

02.03.15 A Meta-Analysis of Coefficient Alpha for the Dundee Ready Education Environment Measure (DREEM)

Sims,Matt *Other*

Sanchez,Zachary *Other*

Detweiler,Byron *Other*

Herrmann,David *Other*

Vassar,Matt *Other*

Course satisfaction, perceived well-being and academic achievement are considered key determinants in assessing educational environments. The Dundee Ready Education Environment Measure (DREEM) is the most suitable instrument in measuring education environment in medical schools. DREEM's five subscales (Perception of Learning, Perception of Teachers, Perception of Atmosphere, Academic Self-Perceptions, Social Self-Perceptions) are used in more than 20 countries and translated into more than 8 languages. Despite the widespread use of the measure, little is known about the psychometric properties of its scale scores. We conducted a meta-analysis of reliability coefficients for the DREEM to summarize mean estimates of reliability across diverse samples and to determine moderator variables related to sample or scale characteristics that might influence variance of reliability estimates across studies. The database search yielded 432 articles, of which 354 were obtained. Following full-text review, data was extracted from 50 studies (14.1%). Mean alpha estimates were .90 for the composite scale, 0.78 for the POL scale, 0.73 for the POT scale, 0.69 for the ASP scale, 0.73 for the POA scale, and 0.52 for the SSP scale. Results indicate acceptable alphas for the composite scale; however, subscale alphas were moderate to low. Thus, measurement error may be problematic when using this scale.

02.03.16 The Comparison of the PUSH Band vs. TENDO in Power Output and Velocity in Moderately Active Adults

Price,Audrey *University of Central Oklahoma*

This project will emphasize the need for power output in moderately active adults by utilizing the PUSH Band vs. the Tendo in order to improve their fitness level. Participants will be recruited from the University of Central Oklahoma meeting criteria needed. Testing of power and velocity will be done utilizing the PUSH Band and the Tendo Weight Lifting Analyzer. To determine the accuracy and validity of the PUSH band on bench press and other lifts in moderately active adults. The primary goal is to determine the accuracy and validity of the PUSH band on bench press and other lifts in moderately active adults. In addition, the purpose is to compare the accuracy of the bench press power output in the PUSH vs. the TENDO in moderately active adults. The hypothesis for the project is that the PUSH Band is an accurate way to measure velocity and power in resistance training in comparison to the Tendo Weightlifting Analyzer. If the PUSH Band has supported data to accurately measure these variables, it could allow more practical settings for training and studies to take place. The other goal of this project is to provide a new way to merge fitness and technology to improve the fitness level in moderately active adults. With the shift for technology based workout data, this could encourage the use of the PUSH Band to track power and velocity. The relevant results of this project indicate there is a correlation of validity with the PUSH Band and the Tendo have similar results.

02.03.17 Statistical Analysis of Anthropometric Data and Fitness Results From Children At The Edmond, Oklahoma YMCA Locations

Ghafil, Jalal *University of Central Oklahoma*

Holmes Ph. D., R.D., L.D., Tawni *University of Central Oklahoma*

This study focused on running different statistical analyses on data obtained from children at the YMCA locations in Edmond, Oklahoma and determining how they compared to national averages. The hypothesis was that the data would yield results consistent with trends regarding Oklahoma being one of the most obese states in America. A variety of tests were run in SPSS including correlations, 1 Sample T Tests, 2 Sample T Tests, Independent T Tests, 1 Way Anova, and 2 Way Anova. The results show that many of the children had BMI scores which were above the national averages, and the children who were indeed above national averages were so far above that it was alarming. The complexity of the analyses yielded results which are very complex, but overall, the P values are very low across the 6 different analyses which were run. This demonstrates that further research is necessary on interventions for children that help with nutrition education programs in order to lose weight. Getting information to parents about how to help their child succeed in living a healthy lifestyle is also vital.

02.03.18 Analysis of Modern Blue-Blocking Lenses in Relation to 405 nm Light

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Cole, Kenenth *Northeastern State University*

Whittle, Charles *Northeastern State University*

High-energy blue light has many potentially harmful effects on both ocular health and physiological functioning. There are now many products on the market designed decrease blue light exposure. This study was designed to evaluate the performance of various modern blue-blocking lens treatments. Seven blue-blocking lenses were tested using an optical bench, spectrometer, and a 405 nm laser light source. Five spectra were captured for each lens and a control. Peak intensity values were averaged to determine the corresponding means. Percent change values were then calculated, comparing each test mean to the control mean. All lenses tested showed a significant reduction in blue light transmission at 405 nm. The following percent reduction values were calculated: BluTech Outdoor (BluTech Lenses) 92.7%; BluTech Indoor (BluTech Lenses) 92.4%; BlueProtect (Zeiss) 41.8%; Retinal Bliss DES (Quantum Innovations) 33.5%; Recharge (Hoya) 31.3%; Crizal Previncia (Essilor) 22.0%; SeeCoat (Nikon) 19.1%. Statistical analysis showed adequate repeatability for all data collection methods. There was a wide range of reduction values between products. But some lenses were designed for varying levels of reduction at different parts of the blue light spectrum, while this study only tested one specific portion. There is also debate on how much blue light reduction is necessary. Therefore, a direct comparison between products should not be made using these methods.

02.03.19 Temporal alterations in expression of aspartate aminotransferase and glutaminase in rat DRG neurons during experimental colitis.

Scheckel,Caleb *Oklahoma State University*

Glutamate (GLU) synthesis in neurons occurs by two enzymes, aspartate aminotransferase (AST) and glutaminase (GLS). Previous studies have examined alterations in AST and GLS expression in rat dorsal root ganglion (DRG) neurons during adjuvant-induced arthritis (AIA). With this model, we noted a biphasic temporal expression of AST and GLS. Our current study aimed to determine the temporal expression of AST and GLS in S1 DRG neurons during a visceral inflammation model, TNBS-colitis. DRG were processed for AST and GLS immunoreactivity followed by quantitative image analysis. A biphasic expression pattern was observed. Increases in AST and GLS occurred at days 1-2 (25-60%) of colitis, returned to baseline at day 4, but elevated at days 8, 16 (30-40%), and day 30 (5-15%). During colitis there is a common expression pattern for AST and GLS in DRG neurons, similar to neurons during AIA. A shared blueprint of neurogenic inflammation, multiple inflammatory mediators, and neurotrophic factors may be responsible for these expression patterns. Neurogenic and inflammatory mediators may cause the initial increase, whereas, a second elevation may be due to neurotrophic factors. Elevated AST and GLS levels in DRG neuronal perikarya leads to increased GLU production in peripheral and central terminals producing peripheral and central hypersensitivity. Therapies for diminishing altered GLU synthesis may hold promise for pain relief in visceral and somatic injury and inflammation.

02.03.20 A Social Network Analysis of Outcomes in Pediatric Acute Lymphoblastic Leukemia Clinical Trials

Blaik,Will *Oklahoma State University*

Wayant,C. *Oklahoma State University*

Herrmann,David *Oklahoma State University*

Nissen,Tim *Oklahoma State University*

Wiebe,Jordan *Oklahoma State University*

Wheeler,Denna *Oklahoma State University*

Vassar,Matt *Oklahoma State University*

Objective: Social network analysis has recently been applied to outcome networks to gauge interconnectivity. This study will do the same with respect to pediatric acute lymphoblastic leukemia (ALL) to diagnose the state of outcome reporting in pediatric cancer trials. Methods: First, a search of clinical databases was conducted for cancer trials concerning pediatric ALL. From the results of this search, 295 papers were randomly sampled and were coded for outcomes, or excluded for complete lack thereof. A total of 182 papers were included in the analysis. A matrix was constructed to display interconnectivity of outcomes. Results: From our 478 unique outcomes we found a total of 18,134 total co-occurrences. Eighty-two outcomes co-occurred with five or less other outcomes. Overall survival (n=632) was most frequently reported. Conclusion: Our data suggests that certain aspects of patient care in pediatric ALL trials are well reported. However, many aspects of patient care, such as quality of life, suffer from lack of reporting in conjunction with other outcomes. A development of core outcomes in pediatric cancer trials is useful and beneficial to researchers and patients. Ensuring a consistent and well-rounded approach to research practices that provide quality patient care, core outcomes simultaneously allow for original innovation in science.

02.03.21 Common Core Outcomes in the Treatment of Hyperemesis Gravidarum as Reported in Obstetrics and Gynecology Journals

Sanchez,Zachary *Oklahoma State University*

Rankin,Justin *Other*

Naumann,Kelsey *Other*

Umberham,Blake *Other*

Holzman,Matthew *Other*

Vassar,Matt *Other*

Core outcome sets (COS) are consensus-based, standardized sets recommended for measurement of a condition. Currently, the diversity of outcomes and the methods used to measure them present challenges for evidence synthesis. These consequences include the risk of selecting suboptimal outcomes due to inconsistencies in operational definitions across trials, approaches used for measurement, and an altogether omission of important outcomes. The use of COS mitigates inconsistencies leading to more consistent research, limited reporting bias, and strengthened clinical decision making. We conducted a systematic review examining Hyperemesis Gravidarum (HG) to determine reported outcomes across studies, determining the instruments used to measure these domains. We searched PubMed, the Cochrane Database, and clinicaltrials.gov for relevant studies examining HG. Initially articles were screened, followed by a full-text review, extracting reported outcomes in each study, including the domain, measurement instrument, associated metric, aggregation method, and time intervals. Descriptive statistics were tabulated for all outcomes. This was the first phase for development of a COS for HG. Future studies, must utilize consensus methodology (Delphi technique) to arrive at a COS important to researchers, patients, and stakeholders. This study elucidates the need for a standardized COS for HG. Standardization will result in improved outcome measurement.

02.03.22 Relationship Between Quality of Life and Physical Activity with Diagnosed Myocardial

wilson,meagan *University of Central Oklahoma*

According to Mozaffarian and the Centers for Disease Control and Prevention, the 2014 statistics have shown that a myocardial infarction occurs in approximately 735,000 Americans every year, which is caused when the heart muscle is damaged or dies because of blocked coronary arteries. Research has suggested that positive physical health practices throughout life and emotional well-being are suggested to prevent or delay this cardiac event. The purpose of this research is to determine if health related quality of life is related to physical activity levels in older adults who have a history of myocardial infarction. Participants will be patients who have undergone a heart procedure, some being previously active and others being previously inactive. Physical activity level will be assessed with a FitBit, which will be worn for three days, and HRQoL data will be gathered with the SF-36 prior to assessing physical activity level. The FitBit will assess how much the participants move on an average daily basis, and it will be compared to how high each participant's HRQoL is. The HRQoL survey should take about ten minutes to complete, and participants will fill it out while at the study location.

02.03.23 A Social Network Analysis of Shoulder Arthroplasty Studies

Scott,Jared *Oklahoma State University*

Sims,Matt *Oklahoma State University*

Detten,Grant *Oklahoma State University*

Howard,Benjamin *Oklahoma State University*

Detweiller,Byron *Oklahoma State University*

Carr,Brandon *Oklahoma State University*

Vassar,Matt *Oklahoma State University*

Introduction: Many techniques exist to generate core outcome sets. We utilized social network analysis to illuminate outcome co-occurrence behaviors in shoulder arthroplasty systematic reviews and primary studies. Method: We first searched PubMed, SPORTDiscus and the Cochrane Central Register of Controlled Trials. We then narrowed the results to publications since 2005. Our search identified 2932 studies from this time period. Our final sample size of eligible studies was 144 articles. Two co-occurrence matrices were coded using data extracted from the included studies according to the guidelines outlined in our abstraction manual. We imported the co-occurrence matrices into UCINET and used NetDraw to generate the networks. Result: The outcome with the highest co-occurrences was pain in primary studies with 356 co-occurrences and constant score in systematic reviews with 183 co-occurrences. The outcomes most commonly reported together in primary studies and systematic reviews were flexion and external rotation, which occurred together in 36 and 18 studies respectively. Conclusion: While some of the studies in this analysis generally reported outcomes that co-occurred in other studies of similar objectives, a substantial amount of studies additionally reported outcomes with very few co-occurrences with studies of similar objectives. Social network analysis techniques are a novel application to identify outcomes with many co-occurrences across studies of similar objectives.

02.03.24 Epidemiology of Testicular Cancer in Oklahoma

Pate,Anne *Southwestern Oklahoma State University*

Biggs,Dylan *Southwestern Oklahoma State University*

Hill,Ben *Southwestern Oklahoma State University*

Henricks,Colton *Southwestern Oklahoma State University*

The objective of this project was to use previously collected public health surveillance data from the Oklahoma Central Cancer Registry to describe the distribution of testicular cancer by age, race, stage and insurance status at diagnosis among residents of Oklahoma. The results of this study can be used to increase awareness and promote screening. This study analyzed 1,298 cases of testicular cancer diagnosed between 1998 and 2012 among Oklahoman males. Age specific incidence rates were calculated to assess trends over time and across age groups. Odds ratios were calculated to assess insurance status, stage at diagnosis, and incidence by race among residents of urban versus rural counties. Results of the analysis found that incidence peaked among males between the ages of 30 and 34. It was also determined that the odds of men who have Medicaid at diagnosis being diagnosed at a late stage is 52% (statistically significant) higher than among men who have private insurance. It was also determined that there was no significant difference in insurance status based on residence in a urban, metro, or rural county. Furthermore, there was no significant difference in staging based on county of residence, suggesting there are no major disparities occurring between urban and rural residents.

02.03.25 Commonly Reported Outcomes in Pediatric Anesthesia Trial Registries

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It is important for researchers and clinicians to compare studies in pediatric anesthesia to determine the best course of treatment for patients. An ideal way to compare studies these studies is to have consistency in reported outcomes. Looking at trial registries reported on clinicaltrials.gov we found a wide array of reported outcomes that aim to determine the effectiveness of different anesthetics in pediatric patients. Trials were screened by all investigators in our group, then coded using a coding template to quantify the data in the trials. Results were analyzed and shown to have a lack of common outcomes, making it harder for studies to be compared in order to give the best care to patients. The results show the most commonly reported outcomes in hopes to give researchers of pediatric anesthesia interventions a better idea of what outcomes are important to the community of pediatric anesthesia investigators. A development of a core set of outcomes is needed in order to better compare and contrast the interventions used in pediatric anesthesia trials.

02.03.26 The Effect of Prism on Preferred Retinal Locus

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Purpose. Our study evaluated the effect of base-up prism on the preferred retinal locus (PRL) of patients with central vision loss as determined by scanning laser microperimetry. **Methods.** We assessed the PRL in 13 subjects with central scotoma under four conditions: No lens, plano, 6 Δ base-up, and 10 Δ base-up. The PRL was evaluated using the MAIA scanning laser microperimeter with no lens, and then with each of the three lenses. The PRL was determined in degrees in horizontal and vertical coordinates from the center of the optic disk using graphical analysis. **Results.** The plano lens induced a PRL mean shift of 0.93 degrees superiorly and 1.65 degrees nasally, compared to no lens. The PRLs with the two powers of prism were compared to the plano lens and showed a superior shift of the PRL in 22 of 26 cases (84.6%). The mean movement was greater with the 10- prism (1.73 degrees) than with the 6- prism (1.37 degrees). The amount of movement was significantly different from zero ($p = 0.001$ for 6D and $p = 0.004$ for 10D). However the shift was also significantly different from the prism power of 3.43 degrees for the 6 Δ lens and 5.71 degrees for the 10 Δ lens ($p < 0.001$ for both). **Conclusion.** In our study base-up prism shifts the PRL in the direction of the prism base, but not nearly as much as the prism deviates light. More study is indicated to evaluate whether this small shift is clinically or functionally significant.

02.03.27 Health Insurance Literacy: Needs Assessment of Northeastern State University Students

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Lack of health insurance literacy is a problem that prevails among different segments of the U.S. population. Its implication range from affording health care, to accessing its benefits. This research is aimed at assessing the health insurance literacy of undergraduate students enrolled in Northeastern State University, and at analyzing the relationship between health insurance literacy, student demographics, and health insurance coverage. The data used in the study were generated, after administering an online survey to all the undergraduate students enrolled at the university, and had declared a major. A total of 231 respondents completed the survey while the findings were analyzed using an Independent T-test and ANOVA. Health Insurance Literacy Measure (HILM) developed by the American Institute for Research (AIR) was used to assess the health insurance literacy of the students. Results of the research showed a statistically significant difference between health insurance literacy and student age groups, type of coverage, and the use of preventive care services. Discussion of the research is centered on health insurance literacy of specific demographic and health insurance coverage groups, and the impact on primary and preventive care services utilization, and emergency department use. Future directions and remedies are also discussed.

02.03.28 Epidemiology of Colorectal Cancer in Oklahoma

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The objective of this project was to use previously collected public health surveillance data from the Oklahoma Central Cancer Registry to describe the distribution of colorectal cancer by age, race and stage at diagnosis among residents of Oklahoma. The results of this study can be used to increase awareness and promote screening for this preventable cancer. This study analyzed 29,781 cases of colorectal cancer diagnosed between 1997 and 2012 among Oklahomans. Age adjusted and age specific incidence rates were calculated to assess trends over time and across age groups. Odds ratios were calculated to assess insurance status and age at diagnosis by urban/rural county of residence. Results of the analysis found that incidence decreased significantly among females between 1998 and 2012. Incidence increased with age among both males and females. A metro/urban resident is 56% more likely to have insurance than a resident of a rural county, OR=1.56. A metro/urban resident is 20% more likely to be diagnosed before the age of 65 compared to a resident of a rural county, OR=1.2. In conclusion, the results of this analysis confirmed similar trends in Oklahoma as compared to the United States. Furthermore, screening is encouraged among all populations.